C-O-N-F-I-D-E-N-T-I-A-L | SEE BOTTOM OF PAGE FOR SPECIAL CONTROLS, IF ANY

INFORMATION REPORT

PREPARED AND DISSEMINATED BY
CENTRAL INTELLIGENCE AGENCY

25X1

COUNTRY: Hungary

SUBJECT: Radar and Air Defense System in Hungary

DATE DISTRIBUTED: 15 February 1957

NO. OF PAGES: 6 | NO. OF ENCLS.:

SUPPLEMENT TO REPORT #

25X1

THIS IS UNEVALUATED INFORMATION

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1. Organization of the Early Warning Defense Network in Hungary.

A. Strategic Operation:
Hungary is divided into Eastern and Western Early Warning Nets. The Communications center for the Western Network is located in Taszar. The Communications center for the Eastern Network is located in Kecskemet. Both centers reported directly to Ollep (Air Defense Command Headquarters) in Budapest. Lateral communication between Taszar and Kecskemet existed for reporting of aircraft passing from one area of jurisdiction to another. Simultaneous reports were made to Olliip. Both, Taszar and Kecskemet, controlled eight radio technical observation posts each. See Incl #1 for the organizational chart of the Early Warning Defense Network which shows the locations of posts and the equipment.

B. Tactical Operation:
See Organizational Chart (Incl#1) for displacement of radar units and equipment. [redacted] there were no lateral communications between posts. He [redacted] the posts were located approximately 100-120 Kilometers from each other. [redacted] all radar sets worked on the same frequency of 47-50 megacycles.

25X1

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[redacted]

25X1

2. Reporting of Aircraft:
See Incl #2, a chart showing the method of reporting aircraft from an observation post to the central central unit. The sequence of reporting procedure is not necessarily correct, however, the elements shown are reported. Numbers shown on the chart are random and unimportant in themselves.

C-O-N-F-I-D-E-N-T-I-A-L

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[redacted] 25X1

The important element is the amount of digits shown in each group. For example, the four digit number "8221" as shown in the first block is an encoded number indicating the track number. The track block will always have a four digit number. [redacted] every morning at 1100 hours, Hungarian time, (1200 hours Moscow time) a new set of four digit numbers would be issued for reporting tracks. 25X1

1. Track Digits: Coded

2. Angle: Coded (See note Below)

3. Distance: Uncoded (block shows aircraft at 425 Kilometers distance).

4. Number, Nation, and Type: Coded

5. Altitude: Uncoded (Block shows aircraft at 1498 M altitude)

6. Time: Uncoded (Block shows time as 1225 Moscow time) 25X1

[redacted]

3. Liaison Between Radar and AAA Sites:

[redacted] aircraft position reports were relayed to an AAA unit at Rakospalota until the fire control radars of said AAA unit locked in on the targets. 25X1

[redacted] 25X1

4. Organizational Breakdown and Functions of Typical Radio Technical Observation Post:

The radar posts listed below show the following personnel strength at various sites [redacted] 25X1

A. Radar Site	Number of Assigned Personnel
Kiskunlachaza	120
Janoshalma	"
Szeged	"
Kalocsa	"
Homokszentgyorgy	"
Nagykanizsa	"
Papa	"
Bekescsaba	60
Hatvan	"
Mezocsat	"
Katafa	"
Fertoszfntmiklos	"
Marcalto	"
Egerag	"

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Fehervar

Debrecen

B. Armaments:
a typical radar site was equipped with one 22mm AA automatic weapon. Unit airmen were armed with submachine-guns and carbines. 25X1

C. Electric Power Generators:
where a "P-8" radar was located, there were two auxiliary power generator trucks which were used for emergency purposes when commercial electricity failed. 25X1

D. Transportation:
Typical unit had one truck, one jeep, and one weapons carrier.

E. Communications:
A typical radar unit maintained communications by radio, telephone, and teletype. Some sites had the new "R-50" radio which can transmit voice, code, and teletype, 25X1

F. Alerting Procedure:
During alerts all radar units were directed to remain on the air. Time

25X1

G. Supplies:
Stock level for technical supply at a typical radar unit was one month.

H. Repair Facilities:
Only minor repairs were accomplished at the unit level. Major radar overhauls were accomplished at a military technical repair depot in Budapest on "Timot Utch" (street), Erzsebet District.

I. Breakdown of a typical radio technical observation unit:
1. See inclosure #3 for unit breakdown of radar post at Janoshalma. Chart shows partial placement of officers and enlisted men in a unit composed of 120 men (see paragraph "A" for sites of a 120 men strength.)

2. See inclosure #4 for unit breakdown of a typical radar post composed of 60 men (see paragraph "A" for sites of a 60 men strength).

5. Memory Sketches of Radar Sites:

A. Hatvan: See inclosure #5.

B. Mezoesat: See inclosure #6.

C. Jonoshalma: See inclosure #7.

6. 25X1

A. The commanding officer of the 1st radio technical observation post at Janoshalma was 2nd Lt. Laskovsky, Janos; 25X1
25X1

B. The intelligence officer of the above unit was senior Lt. Barna, Janos: 25X1

7. Pinpoint Location of Janoshalma Base on Radar Returns:
See inclosure # 8 for sketch of scope picture of Janoshalma radar unit. 25X1

[redacted] 25X1

8. Characteristics of Soviet Radars:

A. "P-3"

1. Maximum Range: 202 Kilometers
2. Operating Frequency: 47-50 Megacycles
3. Pulse Duration: 8-12 Microseconds
4. Operating Cycle: 50 Transmission pulses per minute.
5. Height Indicater: Accuracy plus or minus 700 meters
6. Antenna: See inclosure "9 for dimensions of radiating elements, reflectors, spacing, overall dimensions of dumbo-type antenna for both the "P-3" and the "P-8".
7. Emplacement: Usually located on the ground (not in concrete emplacements).
8. Block diagrams of the "P-3" and P-8".
   a. Receiver
   B. Transmitter: See Incl #11. For G1 type transmitter, see incl #13
9. Instrument panel: See Incl #12.

B. "P-8"

1. Maximum Range: 350 Kilometers
2. Operating Frequency: 47-50 Megacycles
3. Pulse duration: 8-12 Microseconds.
4. Operating cycle: 50 transmission pulses per minute.
5. Height indicator: Accuracy; plus or minus 700 meters.
6. Antenna: Same as for "P-3" above.
7. Emplacement: Same as for "P-3" above.
8. Block diagrams: Same as for "P-3) above.
9. Instrument panel: See Incl #15 for appearance and positions of various compenents.
10. Jamming Filter: See incl #13A for panel diagram and Incl #14 for components.
    a. [redacted] jamming filter was 70-80 % effective. 25X1
    b. Best jamming effect experienced [redacted] at Janoshalma was 25X1 that another radar station located approximately 150 KM away had a malfunction and beamed its energy directly at the Janoshalma radar station for a few minutes, but did not saturate scope in excess of 60 % of its area.
    c. Planned jamming operations: During the last three years (1953-1956) [redacted] 8-10 jamming exercises in which 25X1 both Hungarian and Soviet aircraft participated. [redacted] 25X1 [redacted] with efficient aircraft jamming equipment, ground radars throughout can be made 50% ineffective. 25X1
    d. It is standing operational procedure for all radar stations to immediately report all attempts at jamming to air defense centers and immediately turn on their filter equipment.
11. The "P-8" is installed in a truck.
12. NRZ (IFF) Equipment: See Incl #16 for appearance of IFF return on an "A" scope. Friendly aircraft when interrogated answered in dots and / or dashes. Aircraft could return up to four pulses, in variations of dots and dashes.
13. Card Showing Performance of "P-8" radar on detecting MIG-15: See incl #17 for a graph showing approximate performance characteristics of the "P-8" radar.

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C. Weak points of "P-3" and "P-8" radars:

1. 6ж1ж (Russian letter for "ZH" in phonetics). This receiver tube burns out frequently. It had to be replaced quite often. It was a Soviet produced tube.

2. Transmitter Tube G1 had to be replaced frequently also. This tube never lasted over two months. It was also Soviet produced. TG-400 and TG-8/3000 used in the transmitters also had to be replaced frequently. (Soviet Produced).

3. Antenna System: The spark-gap (gas filled) transmitter receiver switch in the antenna system burned out often.

D. "P-20" (Token):

1. Maximum Range: 400 Kilometers.

2. Operating Frequency: every radar in Hungary operated on the same frequency (47-50 megacycles). 25X1

3. Emplacement: The radar van or building housing the "P-20" was generally located in a concrete emplacement.

E. "P-50" (Modified Token):

1. Maximum Range: Identical to "P-20" 25X1

2. Possible differences between the "P-20" and the "P-50":

a. Power supply control was made more efficient by adding a potentiometer.

b. Each instrument rack had a fan on the top to cool off the equipment. 25X1
the "P-50" is more effective and accurate operationally than the "P-20". air defense control center 25X1
at Kecskemet was equipped with a "P-50".
a "P-50" radar was located at the air defense control center at 25X1
Taszar.

9. Characteristics of Hungarian Radars:

A. "Dunamuszer"

25X1

1. Maximum Range: 80-100 Kilometers. "Dunamuszer" a very inefficient copy of the "P-3" Soviet radar.

25X1

25X1

inclosures to this report:

1. Early Warning Defense Network (Western Frontiers - Eastern Frontiers)
2. Aircraft Reporting Sequence
3. Typical Organizational Chart of Radio Technical Observation Post (120 men)
4. Typical Organizational Chart of Radio Technical Observation Post (60 men)
5. Sketch of Location of 7th Radio Technical Observation Post at Hatvani (4740 N - 1941 E) 25X1
6. Sketch of Location of 6th Radio Technical Observation Post at Mezocsat (4749 N - 2054 E) 25X1
7. Sketch of Location of 1st Radio Technical Observation Post at Janoshalma (4618 N - 1919 E) 25X1

8. Scope Picture of Janoshalma Radar Station

9. Illustration of Dumbo Antenna giving Source's Measurements for Various Parts

10. P-8, P-3 Receiver

11. P-3, P-8 Transmitter

12. Instrument Panel "P-3"

13. Jamming Filter Panel

14. Jamming - Filter

15. Instrument Panel P-8

16. NRZ (IFF) Equipment

17. Graph Showing Performance of P-8 Radar on MIG 15.

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[redacted]

#3 AIRCRAFT REPORT [illegible] SEQUENCE

Callsign (Aircraft)	Date/Time (Zulu)	Altitude (Thousands)	Duration (Minutes)	Range (Nautical Miles)	Bearing (Degrees)
8221	8225Z67	+25	32429	14.38	12.25

C [redacted]

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ENCLOSURE #5

TYPICAL ORGANIZATIONAL CHART OF HQ

TACTICAL OBSERVATION POST (TOP) ASSIGNED

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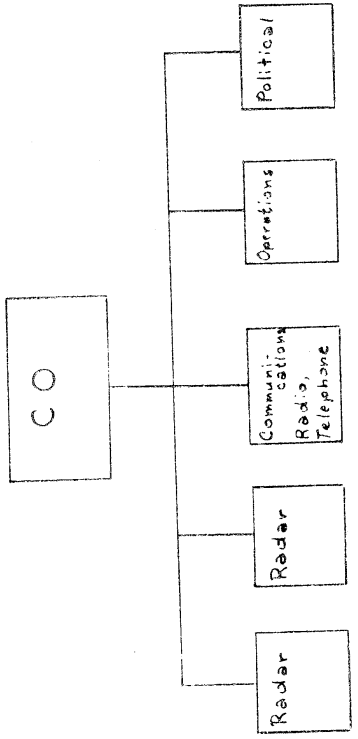
[redacted] #4

TYPICAL ORGANIZATIONAL CHART OF RADIO
TECHNICAL OBSERVATION POST (60 MEN ASSIGNED)



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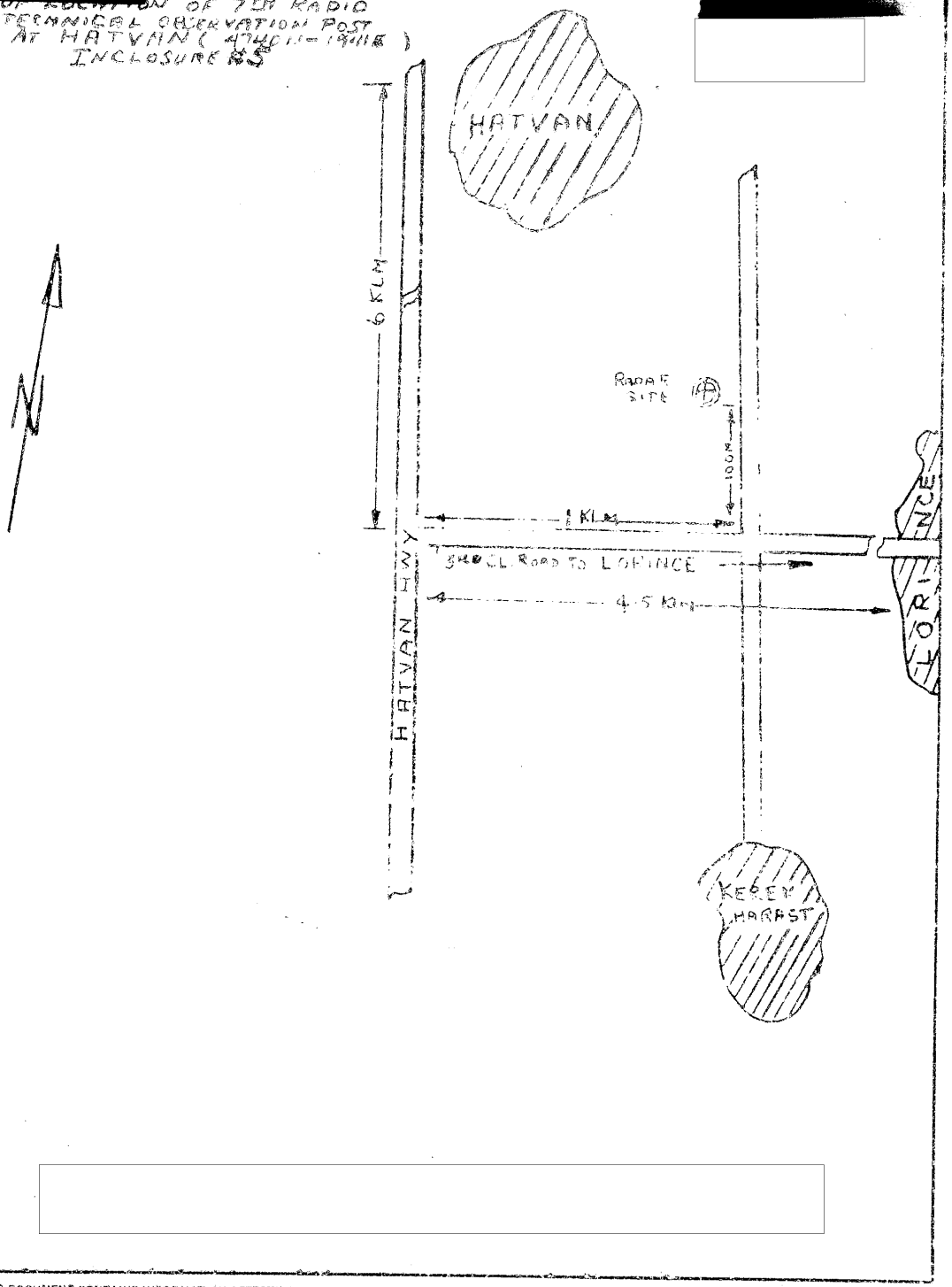
SKETCH OF LOCATION OF 7DM RADIO TERMINAL OBSERVATION POST AT HATVAN (47°40'N-19°11'E)
INCLOSURE #5

25X1



[redacted]

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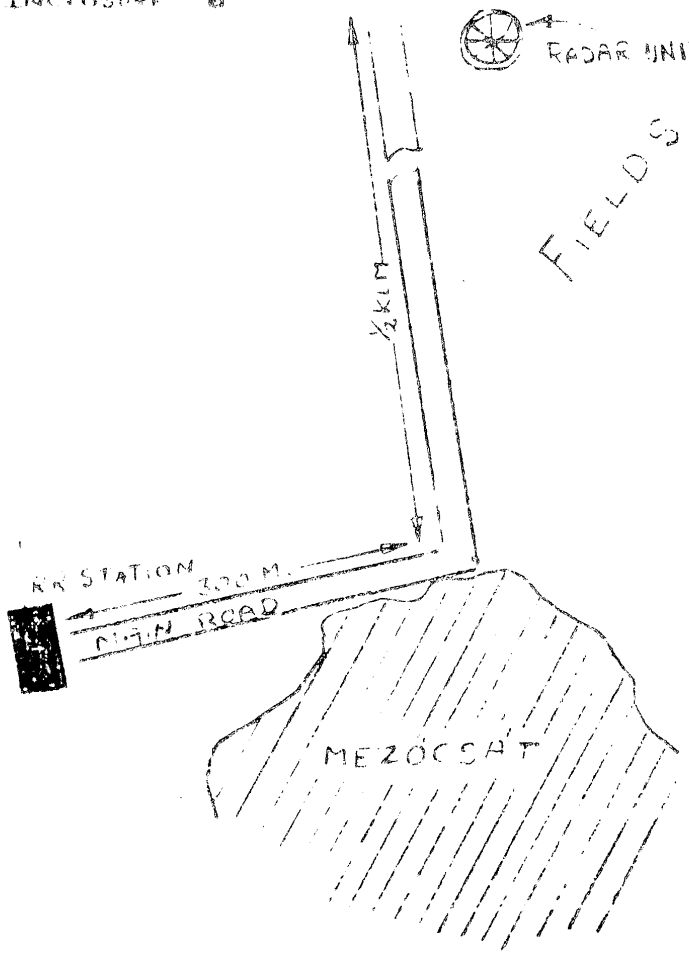
SKETCH
OF LOCATION OF 6TH RADIO
TECHNICAL OBSERVATION POST
AT MEZOCSAT

25X1

ENCLOSURE # 6

25X1



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SKETCH OF LOCATION OF 1ST RADIO TECHNICAL OBSERVATION POST AT JANOSHALMA (46.15'N-19.15'E)

ENCLOSURE #7

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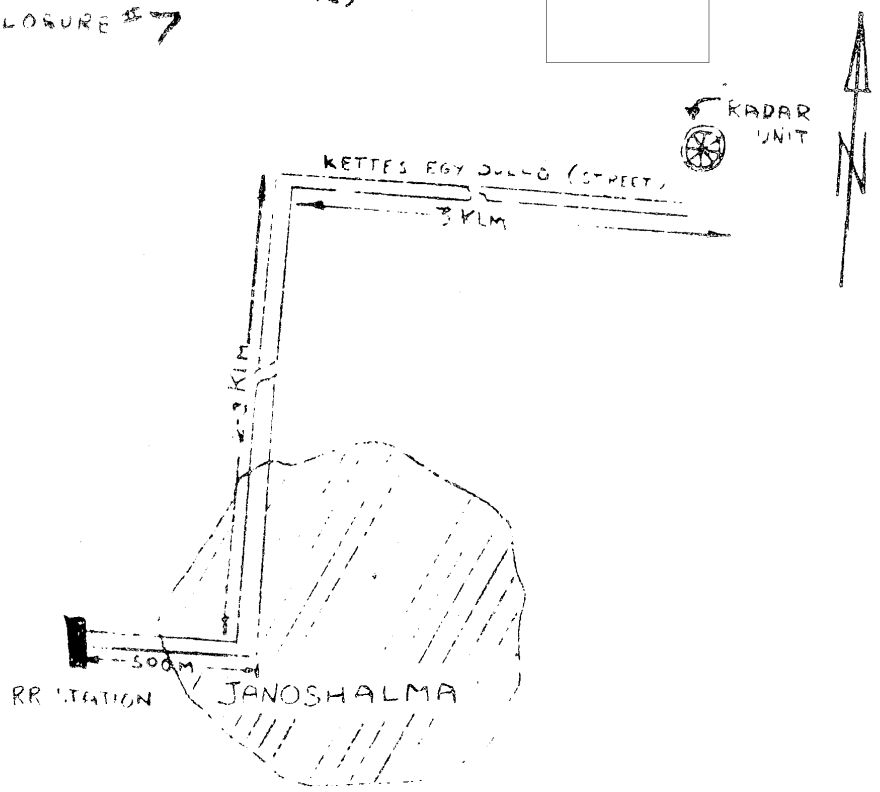

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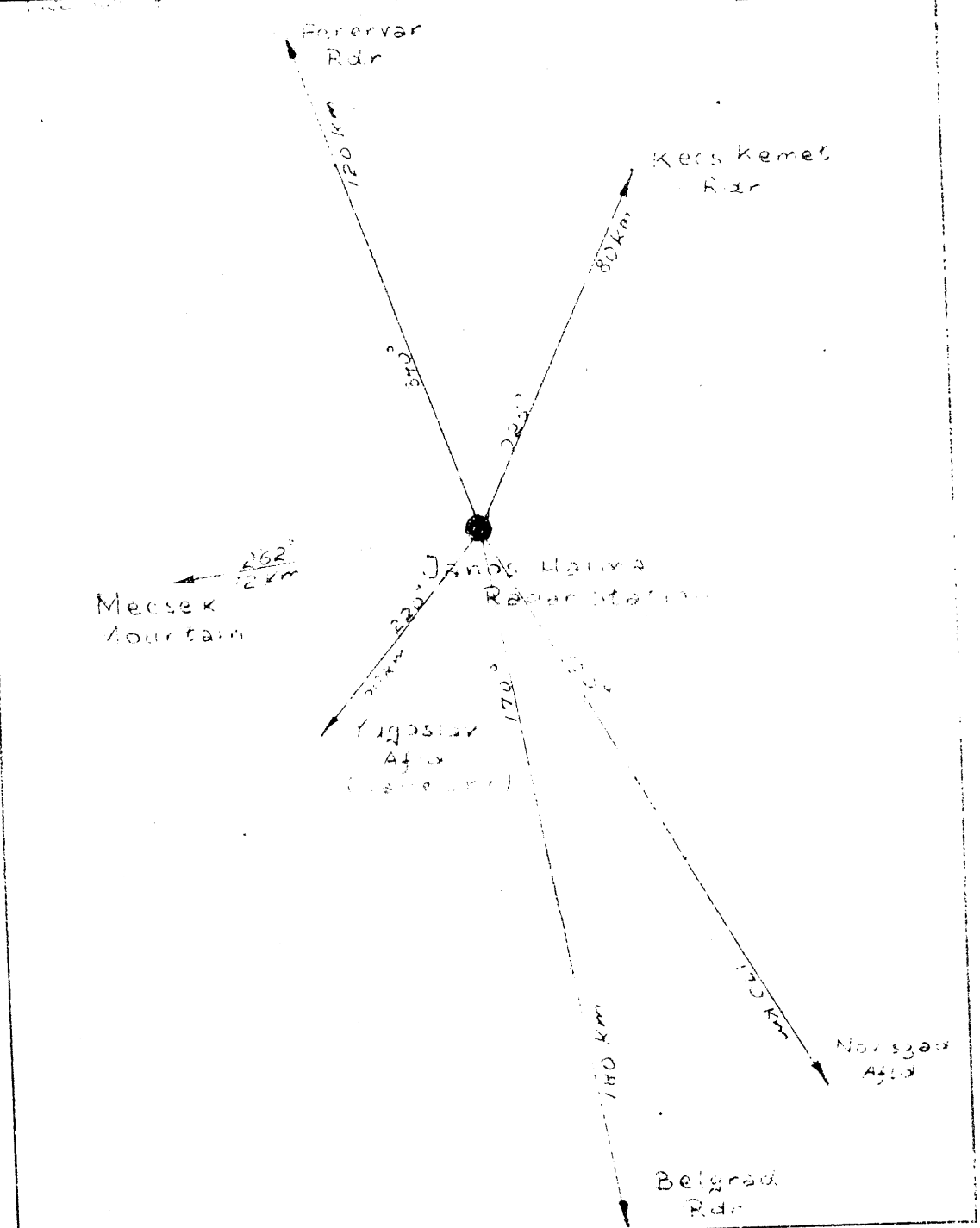
[redacted] [CONFIDENTIAL] [redacted]



[redacted]

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[redacted]ion
of DUMBO Antenna giving
[redacted] measurements
for various parts.

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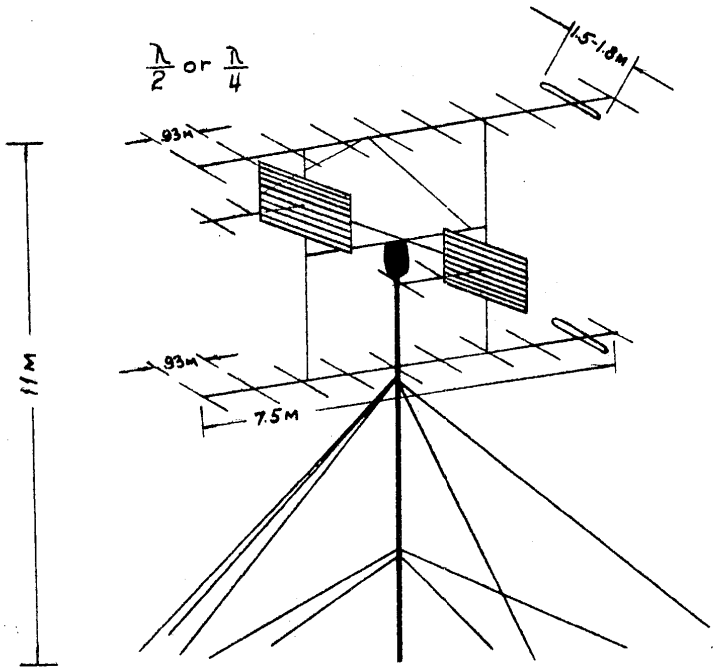
INCLOSURE # 9



P-3 AND P-8 (IDENTICAL [redacted]

25X1

1. OPERATES BETWEEN 47-50 MEGACYCLES BAND
2. CAN BE ROTATED 360° IN BOTH DIRECTIONS

[redacted]

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P-2 P-3

RECEIVER

P-3 P-8

TRANSMITTER

(Stirling Assy)

Pulse Transformer
Ratings in Modulator:
-15; -20; -25 Kilovolts + 400volts

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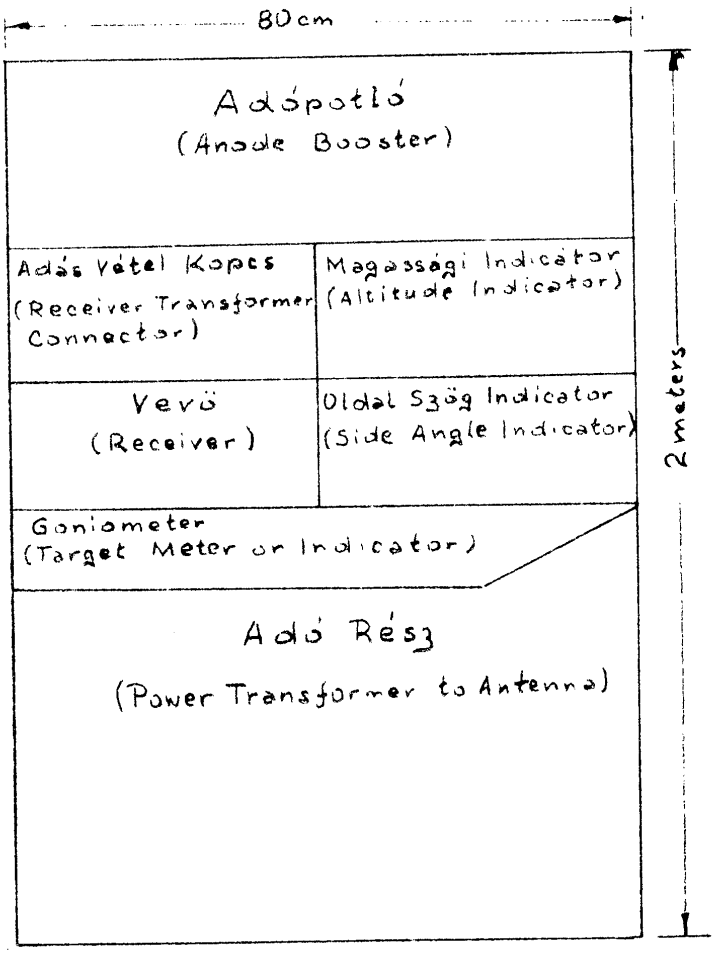
INCLOSURE 12

INSTRUMENT PANEL "P-3"



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INCLOSURE #13

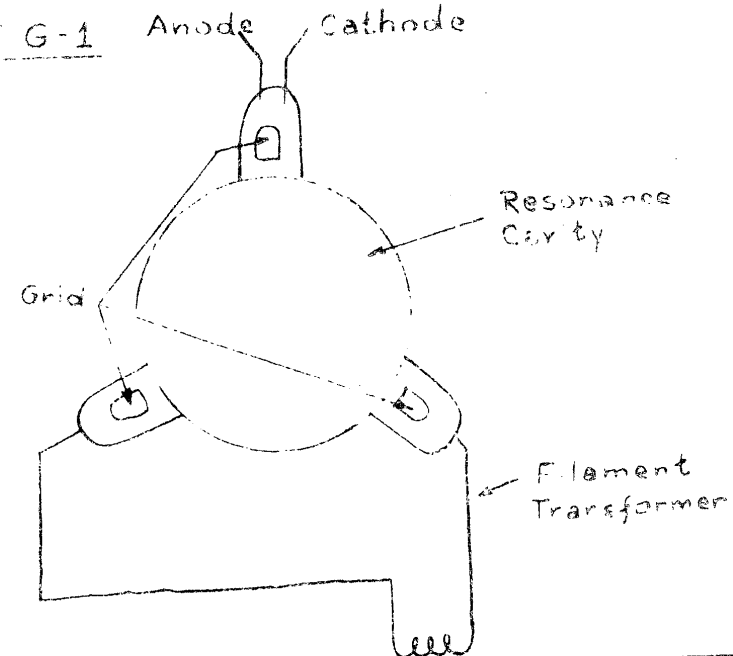
JAMMING FILTER PANEL

A.

S-8 Egység (Unit)
T-8 Egység
ZG-8 Egység
VV-8 Egység

TUBE TYPE G-1

B.



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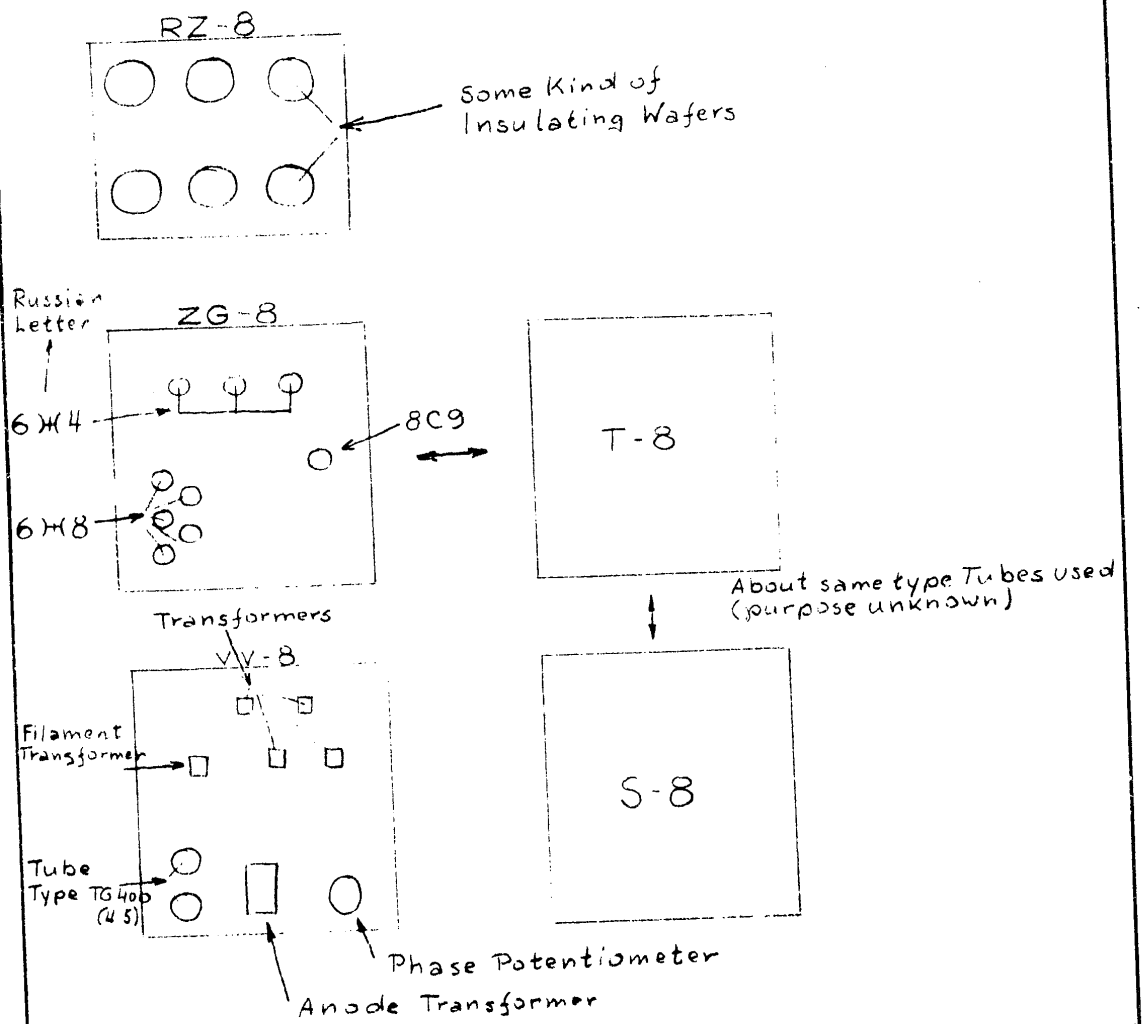
JAMMING - FILTER



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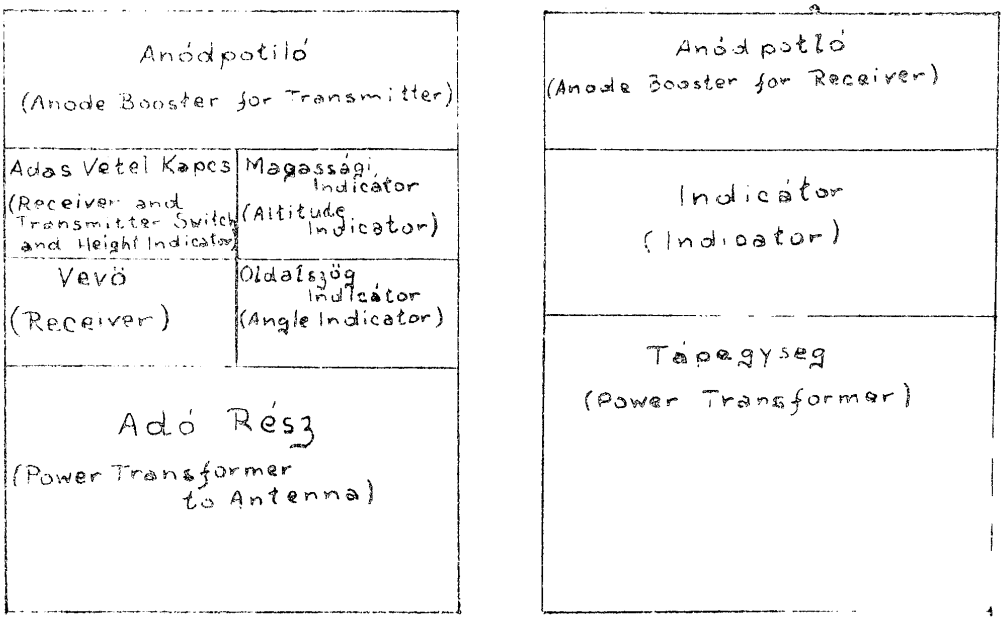
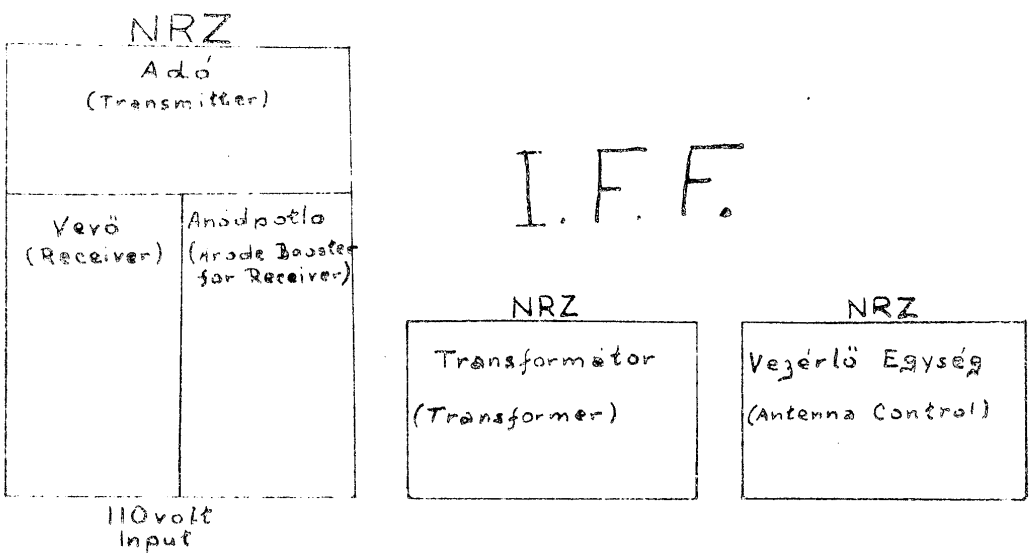
INCLOSURE #15 INSTRUMENT PANEL





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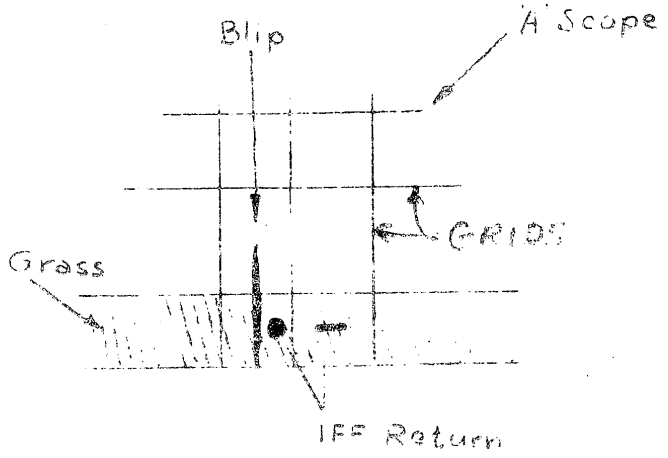

NRZ (IFF) Equipment

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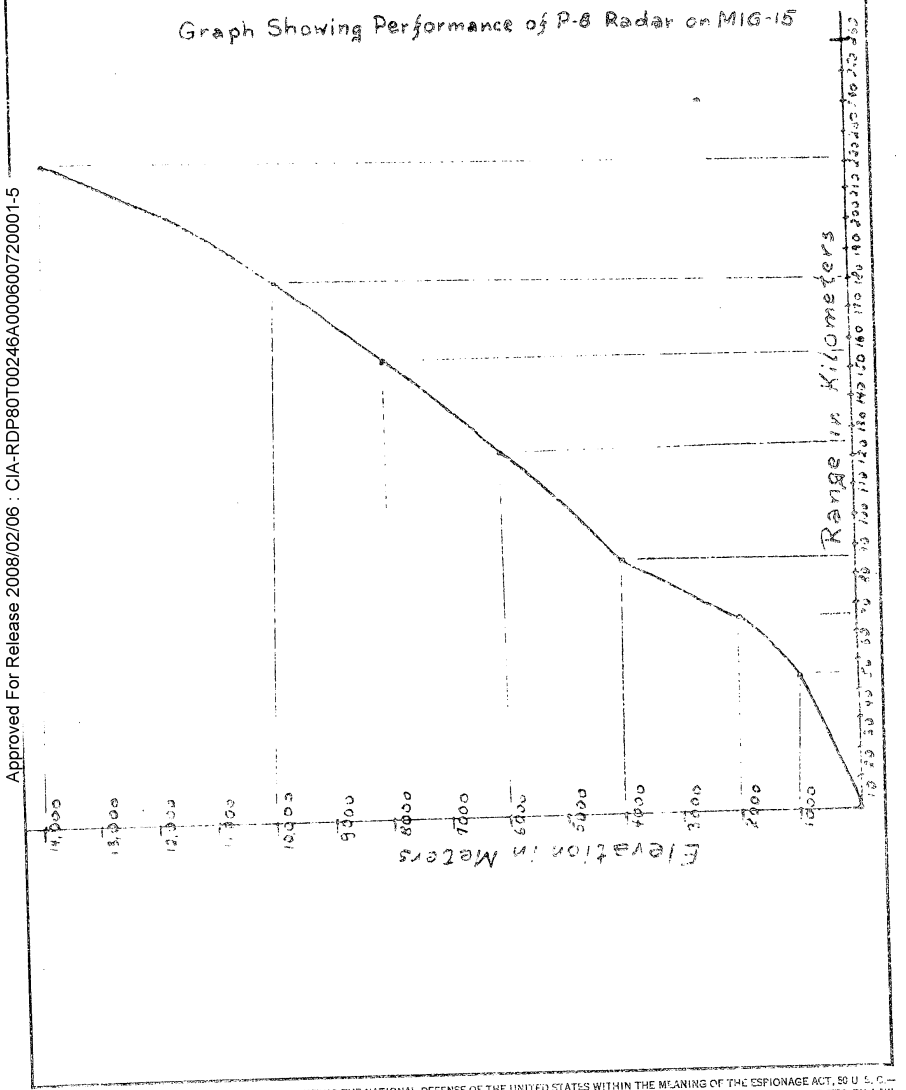
INCLOSURE #17

Graph Showing Performance of P-8 Radar on MIG-15



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